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What Is Claimed Is:

1. A method for measuring a degree of association between n plurality of dimensionally referenced physical events of a pre-determined physical characteristic, said n plurality of physical events each having locations of observation, comprising
5 the steps of:
 - assembling n plurality of physical events each having an indicia of location and a physical characteristic above a first threshold;
 - assembling a universe of possible sample locations;
 - selecting n plurality of sample locations from said universe;
 - 10 determining a reference distribution by calculating a test statistic for each of n' plurality of random allocations of the n plurality of physical characteristics over said n plurality of sample locations;
 - determining a restricted distribution by calculating said test statistic for each of n'' plurality of restricted random allocations of the n plurality of physical
15 characteristics over said n plurality of sample locations; and
 - determining the degree of association between said n plurality of physical events based upon said determined reference and restricted distributions.
2. The method of Claim 1 further including the step of grouping said n
20 plurality of physical events when said degree of association exceeds a second threshold.
3. The method of Claim 1 wherein said locations of each of said n plurality of physical events are within an area of analysis, said area of analysis including a first
25 sub-area and a second sub-area, wherein x number of physical events are located in said first sub-area and y number of said n plurality of physical events are located in said second sub-area, and wherein the steps of selecting n plurality of sample locations from said universe and determining a reference distribution by calculating a test statistic for each of n' plurality of random allocations of the n plurality of
30 physical events over said n plurality of sample locations include:
 - a) selecting n plurality of sample locations to include x number of sample locations in said first sub-area and y number of sample locations in said second sub-area;

- b) randomly allocating the physical characteristics from said n plurality of physical events over said n plurality of sample locations;
 - c) calculating said test statistic; and
 - d) repeating steps (a), (b), and (c) to generate said restricted distribution
- 5 including n' calculations of said test statistic.

4. The method of Claim 3 wherein the step of determining a restricted distribution by calculating said test statistic for each of n'' plurality of restricted random allocations of the n plurality of physical events over said n plurality of sample

10 locations includes:

- a) selecting n plurality of sample locations to include x number of sample locations in said first sub-area and y number of sample locations in said second sub-area;
 - b) randomly allocating the events from each of said x number of n plurality
- 15 of physical events in said first sub-area over said x number of sample locations and randomly allocating the physical characteristics from each of said y number of n plurality of physical events in said second sub-area over said y number of sample locations;
- c) calculating said test statistic; and
 - d) repeating steps (a), (b), and (c) to generate said restricted distribution
- 20 including n'' calculations of said test statistic.

5. The method of Claim 1 wherein the step of determining the degree of association between said n plurality of physical events based upon said determined

25 reference and restricted distributions includes the steps of:

- selecting a critical value of the reference distribution;
 - calculating a credibility of the restricted distribution by determining the proportion of the restricted distribution that is as or more extreme than said critical value; and
- 30 determining whether said credibility evidences a statistically significant level of association for the physical characteristics.

6. The method of Claim 1 wherein the step of assembling a universe of possible sample locations includes constructing a location model indicating the density distribution of possible locations within an area of analysis.

5 7. The method of Claim 6 wherein said location model is one of a point model, a population model, a polygon model, and a risk model.

8. The method of Claim 1 wherein said physical events have an uncertain location.

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9. The method of Claim 1 wherein said universe of possible sample locations includes more than n plurality of possible sample locations.

15 10. The method of Claim 1 wherein said physical events are dimensionally referenced in a spatial dimension.

11. A computer-implemented method for creating a cluster of dimensionally referenced physical events, said cluster representing a dimensional region encompassing n plurality of said physical events exhibiting a predetermined physical characteristic above a predetermined threshold, comprising the steps of:

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assembling a first data structure indicative of the locations of observation and the physical characteristic for said n plurality of physical events;

assembling a second data structure indicative of a sample space;

25 determining a reference distribution via a computer processor by calculating a test statistic for each of n' plurality of random allocations of the n plurality of physical events over n plurality of first sample locations, said computer processor communicating with said first and second data structures and configured to select said n plurality of first sample locations from said second data structure;

30 determining a restricted distribution via said computer processor by calculating said test statistic for each of n'' plurality of restricted random allocations of the n plurality of physical events over n plurality of second sample locations, said computer processor selecting said n plurality of second sample locations from said second data structure;

determining the degree of association between said n plurality of physical events based upon said determined reference and restricted distributions; and
creating a grouping of said n plurality of physical events only when said degree of association exceeds a predetermined value.

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12. The method of Claim 11 wherein said sample space includes more than n plurality of possible sample locations.

13. The method of Claim 11 wherein said locations of observation of each
10 of said n plurality of physical events are within an area of analysis, said zone of analysis including a first sub-zone and a second sub-zone, wherein x number of said n plurality of physical events are located in said first sub-zone and y number of said n plurality of physical events are located in said second sub-zone, and wherein the step of determining a reference distribution via a computer processor by calculating
15 a test statistic for each of n' plurality of random allocations of the n plurality of physical events over n plurality of first sample locations includes:

- a) selecting said n plurality of first sample locations to include x number of sample locations in said first sub-zone and y number of sample locations in said second sub-zone;
- 20 b) randomly allocating the characteristics from said n plurality of physical events over said n plurality sample locations;
- c) calculating said test statistic; and
- d) repeating steps (a), (b), and (c) to generate said reference distribution including n' calculations of said test statistic.

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14. The method of Claim 13 wherein the step of determining a restricted distribution via said computer processor by calculating said test statistic for each of n'' plurality of restricted random allocations of the n plurality of physical events over n plurality of second sample locations includes:

- 30 a) selecting said n plurality of second sample locations to include x number of sample locations in said first sub-zone and y number of sample locations in said second sub-zone;

b) randomly allocating the events from each of said x number of n plurality of physical events in said first sub-zone over said x number of sample locations and randomly allocating the events from each of said y number of n plurality of physical events in said second sub-zone over said y number of sample locations;

5 c) calculating said test statistic; and

d) repeating steps (a), (b), and (c) to generate said restricted distribution including n'' calculations of said test statistic.

15 15. The method of Claim 11 wherein the step of determining the degree of association between said n plurality of physical events based upon said determined reference and restricted distributions includes the steps of:

selecting a critical value of the reference distribution;

calculating a credibility of the restricted distribution by determining the proportion of the restricted distribution that is as or more extreme than said critical value.

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16. The method of Claim 15 wherein the step of creating a grouping includes creating the grouping only when said credibility exceeds a predetermined level.

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17. The method of Claim 11 wherein the universe of possible sample locations is a location model indicating the density distribution of possible locations within a zone of analysis, said location model being one of a point model, population model, polygon model, and a risk model.

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18. The method of Claim 14 wherein said physical events are dimensionally referenced in a spatial dimension and wherein said zone is an area, and said sub-zones are sub-areas of said area.

19. A method for measuring a degree of association between physical events, comprising the steps of:

assembling a plurality of physical events;

assembling a universe of possible sample locations;

5 determining a degree of association between said plurality of physical events by randomizing said physical events over said sample locations.